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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,230	09/18/2001	Christopher J. Kelly	INTL-0644-US (P12307)	8306

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EXAMINER

DINH, TUAN T

ART UNIT PAPER NUMBER

2827

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/955,230

Applicant(s)

KELLY ET AL.

Examiner

Tuan T Dinh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 September 2002 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as **--Prior Art--** because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification is silent regarding "regulated supply voltage, claims 1, 15, lines 2-3, ...voltage plane has an outer boundary, claims 2, 5, lines 1-2, the ground plane has an outer boundary, claims 8, 11, and 19, lines 1-2.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, line 4, the phrase of "a supply voltage plane embedded in the signal layer" is not understood. Does applicant mean "the voltage plane embedded inside the signal layer or traces?"

Regarding claim 15, line 3, the phrase of "a ground plane embedded in the supply voltage plane layer" is not understood. Does applicant mean "the ground plane embedded inside the supply voltage layer?"

Regarding claims 13-14, it is unclear. The phrase of "the ground plane or the voltage plane is arranged to reduce an inductance" is not understood. What does applicant mean of "arranged?" Can the ground plane or the voltage plane displace in any positions to reduce an inductance?

Regarding claims 20, and 27, line 1, it is unclear. What does applicant meant of "a method?" Applicant has to clarify what "method" to apply to.

Regarding claim 20, lines 1-2, it is unclear. The phrase of "the method comprising: for each high frequency component to be mounted...PCB" is not understood.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Brown et al. (U. S. Patent 5,428,506).

As best understood to claims 1, 3, 5, 13-14, Brown discloses a printed circuit board (PCB, column 3, line 5) as shown in figures 1-2 comprising:

signal layer (1 and 8-figure 1, column 3, lines 6 and 9) comprising traces to communicate signals; and

a supply voltage plane (3, column 3, line 7) embedded between the signal layer (1, 8) to supply power to multiple supply voltage pins (9, column 3, lines 9-10) of a component (14-figure 1) mounted to the printed circuit board.

As to claims 2, 6, 8, 11, Brown discloses the PCB as shown in figures 1-2 further comprising:

a supply voltage plane layer (6, column 3, line 8) separate from the signal layers (1 and 8), said supply voltage plane layer comprising an embedded ground plane to provide ground connections (10-figure 1, column 3, line 10) for the signal layer.

As to claims 4, 9, Brown discloses the PCB as shown in figures 1-2 wherein the supply voltage plane (3) lies substantially within a region located directly below the component (14-see figure 1), the component being mounted on top of the signal layer.

As to claim 7, Brown discloses the PCB wherein the ground connections (10) are associated with electrical devices connected to the component (14).

As to claim 10, Brown discloses the PCB wherein the ground plane is significantly larger than the supply voltage plane.

As to claim 12, Brown discloses the PCB further comprising:

a core layer (5),

wherein the signal layer (1) and the supply voltage plane layer (6) are located on the same side of the core layer.

Regarding claims 20-26, the method is necessitated by the PCB structure as discloses by Brown.

As best understood to claims 15, 19, Brown discloses a printed circuit board (PCB, see figures 1-2) comprising:

a supply voltage plane layer (1); and

a ground plane (3) embedded between the supply voltage plane layer to provide ground connections to multiple pins of a component (14) mounted to the printed circuit board.

As to claim 16, Brown discloses the PCB as shown in figures 1-2 further comprising:

a ground plane layer (6) separate from the supply voltage plane layer.

As to claim 17, Brown discloses the PCB as shown in figures 1-2 wherein the ground plane lies substantially within a region located directly below the component, the component being mounted on top of the signal layer.

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As to claim 18, Brown discloses the PCB as shown in figures 1-2 wherein the ground connections are associated with electrical devices connected to the component.

Regarding claims 27-29, the method is necessitated by the PCB structure as discloses by Brown.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. McChanahan et al., Deutsch et al., Kametani et al., Howard et al., Steigerwald et al., Harada et al., Iguchi et al., and Teshome et al. Disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

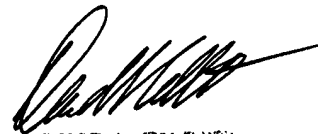
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

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November 2, 2002



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